

THE REEF DWELLING FISHES OF THE DARWIN AREA

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INTRODUCTION:

Many Darwin people spend their leisure time fishing, snorkelling or reef fossicking, and invariably have at one stage seen or caught a fish that they cannot identify. Unfortunately, most of the classic literature pertaining to this area is difficult to obtain, and even then, some of the more common species are not listed. In fact, very little study has been carried out on the reef fish of this area, and there is every likelihood of a casual observer finding a rare or undescribed species.

Obviously, in an article such as this, it is impossible to present a comprehensive guide to our fish fauna. Instead, it is my endeavour to present a general discussion of the environment in which these animals live, how to observe them, and a resume of the various families. Included is a checklist of those species which I have recorded in this area.

THE REGION:

Darwin lies fairly centrally on the southern edge of a large oceanographic zone known as the Indo-Pacific Region. This region is a vast area which extends from Eastern Africa, through the tropical Indian Ocean, South East Asia, and the Western Pacific, where it extends south to Lord Howe Island, east to Gambier Island, and north to Hawaii. Many Barrier Reef species occur in Darwin, and the majority of Darwin fish extend down the tropical west coast of Australia. Some species are distributed throughout the Indo-Pacific, while several are found only in the Northern Territory.

THE HABITAT:

Due to extremes in tidal variation, the proximity of large rivers and estuaries and the monsoonal effect, waters around Darwin are generally fairly turbid. Visibility is at best about seven metres, at worst - zero, but in sheltered areas, is usually about four metres during the dry season.

The main coral reefs of Darwin occur in protected areas near headlands, such as those at East Point, Lee Point, and Gunn Point. Coral filled lagoons occur in rocky areas such as Nightcliff, and Lee Point, where the low tides provide clear, still waters. Many areas of coral are completely exposed on tides of less than 1.5 metres, and in this case, fish either vacate the reef, or shelter in shallow pools. Large amounts of weed bloom over the reefs towards the end of the wet season, and it is at this time that many species breed (although some species will breed all year round).

The coral reef is regarded as a very stable environment. Consequently, reef-dwelling fish are extremely specialised and adapted to conditions which remain virtually unchanged throughout the year. Waters of the coral reef are almost always calm and fairly clear, and have a small temperature range. They have a high salinity and oxygen content, and maintain a PH value of about eight.

In shore reefs such as those in the vicinity of Darwin are occasionally muddy and turbulent, and therefore support a less diverse fish population. In contrast, the vast coral reefs of the Vernon Islands, about eighty kilometres to the north-east of Darwin, support a number of species which are not found along the coast.

OBSERVING AND COLLECTING SPECIMENS:

Due to the very nature of their environment, collecting specimens of reef fish is a difficult task. Netting a coral reef is comparatively futile and most collecting for research material is done with the aid of a drug, Rotenone, which quickly kills any fish coming in contact with it. Fish can be fairly safely collected with the aid of an anaesthetic, such as Quinaldine or MS222, but these drugs are very expensive, and must be used cautiously. Some tropical fish importers even use Cyanide to obtain specimens, a practice which is fortunately gaining worldwide disapproval.

Obviously, the best way to observe fish in their natural environment is to get in there with them. Snorkelling or skindiving in a coral reef is a fascinating pastime. Pick a low neap tide during the dry season, when the reef is submerged to a depth of about two or three metres, and the visibility will be fairly good. To actually catch fish in this situation, with nets or a slurp gun, will at first seem very difficult, but a little practice yields results.

Wandering out upon the coral on a very low tide is also a good way to find fish. If you go out during the low night tide, you will be greatly rewarded, as the resting fish are seen hiding under overhangs or just drilling about, are quite easily caught.

Great care should be taken when walking on the reef, as some corals are very brittle, and easily damaged. Strong shoes should be worn, as many corals can give a painful sting, not to mention the possibility of treading on a Stonefish.

Finally, collectors should remember that corals take a long time to grow, regenerating very slowly if damaged. Indiscriminate collecting of species such as Clownfish and their anemones will destroy the reef. Future generations should be able to observe these fascinating communities as they exist at present.

MAJOR FAMILIES OCCURRING AROUND DARWIN

The following is a description of some of the larger or more common families of reef-dwelling fish which are likely to be encountered in the vicinity of Darwin.

ORECTOLOBIDAE (Reef Sharks)

The Reef Sharks are recognised by their bottom dwelling habits, and unlike the larger pelagic sharks, they do not need to swim constantly in order to breathe. They are small and nocturnal, but may be encountered during the day, hiding under rocks and overhangs.

PLOTOSIDAE (Eel Tailed Catfish)

A group of nocturnal reef scavengers which possess four pairs of fleshy barbels on the snout. They are scaleless, and are endowed with sharp dorsal and pectoral spines which can inflict a painful wound.

MURAENIDAE (Moray Eels)

Medium to large predatory fish, they generally live in holes and under coral colonies. Although not poisonous, their strong jaws and savage disposition should be respected.

APOGONIDAE (Cardinalfish)

A large group of nocturnal fish, many are brightly coloured. They are often seen in large shoals milling around stands of Staghorn [*Acropora*] coral. They are characterised by their large and often bright blue eyes, and a tendency to hover motionless in the water.

SERRANIDAE (Rock Cod)

A large family of secretive predatory fish. They have unmistakably large mouths, and the corresponding appetite makes them easy prey for the reef fishermen.

LUTJANIDAE (Snapper, Sea Perch)

A large and common group of active, carnivorous fish, which may occur in big schools on coral reefs. Most are of a streamlined appearance, often coloured with lateral stripes and a black blotch on the side.

MULLINDAE (Goatfish)

A group of bottom dwelling fish recognised by a pair of fleshy barbels projecting from under the chin.

MONODACTYLIDAE (Moonfish)

A group well-known in the fishing fraternity, the Moonfish or Silver Batfish, is a laterally compressed fish bearing a superficial resemblance to the true

Batfish [*Ephippidae*]. The juveniles inhabit brackish water and are often sold as freshwater aquarium exhibits.

EPHIPPIDAE (Batfish)

Large, laterally compressed fish with extended dorsal and pelvic fins. Because of great variations between individuals from different areas, and the change of shape from juvenile to adult, this family has presented many problems for taxonomists.

CHAETODONTIDAE...

Subfamily *CHAETODONTINAE* (Butterflyfish)

This is a very large and colourful family of small, laterally compressed fish, which feed almost wholly on coral polyps. These are the typical fish that most people identify with tropical coral reefs. Their delicate colours and appearance make them attractive aquarium fish, but they are not recommended for the beginner. At least six species occur in the Darwin area, although two of these [*Chaetodon adiergastos* and *Hentochis acuminatus*] can be regarded as very rare.

Subfamily *POMACANTHINAE* (Marine Angelfish)

This group is distinguished from the previous subfamily by the strong spine which projects from below the gills. As well, they generally attain a larger size. They are amongst the world's most colourful and graceful animals, and are much sought after by marine aquarists. Probably only two species occur in Darwin, the commonest being the Scribbled Angelfish [*Shaetodontoplus duboukyi*] undoubtedly the most colourful fish to be encountered in these waters.

POMACENTRIDAE...

Subfamily *AMPHIPRIONINAE* (Clownfish)

The Clownfish are a brightly coloured group which are found in association with sea anemones. The mucus covering on their skin gives them immunity from the anemone's deadly stinging tentacles, and the fish use the protection of the anemone to survive, as they are a slow swimming and fairly defenceless group. In the wild, the three species which are found in Darwin, all inhabit different anemone species, although in captivity, they will readily swap anemones, or even live quite happily without them. It is worth mentioning that the spectacular black and white colour form of *Amphiprion ocellaris* is strictly confined to North Western Australia, particularly the Darwin area.

Subfamily *POMACENTRINAE* (Damsel fish)

A very large group of small, brightly coloured fish which are thought to be close relatives of the freshwater *Cichlids*. They are extremely territorial, and are one of the commonest of our reef fish. They are active and alert, and the colourful juveniles are a prolific sight in the rockpools around our coastline.

LABRIDAE (Wrasses, Tuskfish)

The Wrasses and Tuskfish are a large family but one which is poorly represented in Darwin. I have encountered only one species of wrasse here [*Halichoeres nigrescens*], which is abundant in this area. It is basically green in colour and burrows in the sand at night, or when disturbed. Tuskfish of the genus *Choerodon* have presented many problems for the taxonomist, so the classification of at least one Darwin species is doubtful. These fish are generally known as "Parrotfish" by fishermen, due to their colourful appearance and mouth structure, but in fact, the true Parrotfish [*Scaridae* family] are essentially coral feeders, and not very common in this area. Due to their specialised feeding habits, it is unlikely that many hook and line fishermen have ever landed a true "Parrot".

GOBIIDAE (Gobies)

This and other related families, such as the Blennies and Gudgeons, are small, carnivorous fish which generally inhabit shallow water and coastal tide-pools. They are bottom dwellers, and include some of the world's smallest vertebrates.

SIGANIDAE (Rabbitfish, Spinefeet)

Medium sized herbivorous fish found in weedy areas and often around stands of coral. The juveniles may be found in brackish areas such as around mangroves.

ACANTHURIDAE (Surgeonfish)

A family poorly represented in Darwin by a single species. They are coral and algae feeders, and can be

distinguished by the retractible knife-like weapon which they sport on either side of the tail base.

SCORPAENIDAE (Scorpionfish, Lionfish)

The Darwin area supports a large variety of fish from this family. They are a bizarre looking group, containing such creatures as the Butterfly Cod (Lionfish), several small and colourful species of Scorpionfish, and of course, the Stonefish, all of which may be encountered in the Darwin area. All possess poisonous dorsal spines capable of inflicting painful wounds, or causing death, to humans.

BALISTIDAE (Leatherjackets, Triggerfish)

Slow swimming, herbivorous fish, having a single dorsal spine and no ventral fins, the Leatherjackets generally frequent weedy areas. The sub-family *Balistinae* (Triggerfish) are noticeably absent from Darwin waters.

OSTRACIDAE (Boxfish)

Small, curious looking fish which are awkward swimmers, and as the name implies, have a box-shaped body. The scales are formed into bony plates which cover the body.

ANTENNARIIDAE (Anglerfish)

Darwin supports a variety of these strange fish. They are generally found sitting motionless on the bottom of tidal pools, waiting patiently for some small animal to be attracted by the "fishing pole" projecting from the top of their head.



Chetodon aureofasciata — Golden Striped Butterflyfish

PRELIMINARY CHECKLIST:

SCIENTIFIC NAME

COMMON NAME

<i>Orectolobus wardi</i>	Northern Wobbegong Shark
<i>Hemiscyllium ocellatum</i>	Epaulette Shark
<i>Hemiscyllium trispeculare</i>	Spotted Catshark
<i>Stegostoma fuscium</i>	Leopard Shark
<i>Rhinobatos batillum</i>	Shovel Nosed Shark
<i>Carcharhinus spallanzani</i>	Black Tipped Shark
<i>Himantara aarnak</i>	Coachwhip Ray
<i>Dasyatis kahlii</i>	Blue Spotted Stingray
<i>Plotosus anguillaris</i>	Striped Catfish
<i>Peraplotosus albilabris</i>	Common Catfish
<i>Netama thalassina</i>	Salmon Catfish
<i>Gymnothorax sp. *</i>	Green Moray Eel
<i>Lycodontis pictus *</i>	Speckled Reef Eel
<i>Hemiramphus quoyi</i>	Short Nosed Garfish
<i>Hyporhamphus sp.</i>	Sea Garfish (several species)
<i>Holocentrus ruber.</i>	Red Squirrelfish
<i>Yozia bicouactata</i>	Pipefish
<i>Liza dussumieri</i>	Mullet
<i>Liza vaigiensis</i>	Diamond Scaled Mullet
<i>Absalom radiatus</i>	Fringe Finned Trevally
<i>Apogon cooki</i>	Red Cardinalfish
<i>Apogon opercularis</i>	Cardinalfish
<i>Archamia melasma *</i>	Cardinalfish
<i>Plectropoma maculatum</i>	Coral Trout
<i>Epinephelus tauvina</i>	Estuary Rock Cod
<i>Epinephelus gilberti</i>	Wire Netting Cod
<i>Cephalopholis pachycentron</i>	Banded Rock Cod
<i>Cromileptes altivelis</i>	Leopard Cod
<i>Disloprion bifasciatum</i>	Yellow Emperor
<i>Pseudochromis wilsoni</i>	Yellow Finned Dotyback
<i>Pseudochromis punctatus</i>	Long Finned Dotyback ('Marine Siamesefighter')
<i>Gnathypops darwiniensis</i>	Roundhead
<i>Halophtyrne diemensis</i>	Frogfish
<i>Lutjanus russelli</i>	Moses Perch
<i>Lutjanus johni</i>	Sea Perch
<i>Lutjanus argentimaculatus</i>	Mangrove Jack
<i>Lutjanus carponotatus</i>	Spanish Flag
<i>Lutjanus sebae</i>	Red Emperor
<i>Caesio cuning</i>	Yellow Tailed Fusilier
<i>Scolopsis nicanor</i>	Monocle Bream (several species)
<i>Nemipterus sp. *</i>	Painted Sweetlips
<i>Plectorhynchus pictus</i>	Crescent Perch
<i>Therapon jarbua</i>	Bar Tailed Perch
<i>Amphitherapon caudavittatus</i>	Bar Tailed Goatfish
<i>Upeneas tragala</i>	Red Goatfish
<i>Mulloidichthys auriflamma</i>	Moonfish
<i>Monodactylus argenteus</i>	Long Finned Batfish
<i>Platux pinnatus *</i>	Hump Headed Batfish
<i>Platux batavianus</i>	Short Finned Batfish
<i>Drepane punctata</i>	Sicklefish
<i>Selenotoca multifasciata</i>	Silver Scat
<i>Chelmon marginalis</i>	Long Nosed Butterflyfish
<i>Chelmon maelleri</i>	Chocolate Butterflyfish
<i>Heniochus acuminatus</i>	Pennant Butterflyfish
<i>Parachaetodon ocellatus</i>	Six Spined Butterflyfish
<i>Chaetodon aureofasciatus</i>	Golden Striped Butterflyfish
<i>Chaetodon adiergastos</i>	Butterflyfish
<i>Chaetodontoplus duboulayi</i>	Scribbled Angelfish
<i>Euxiphipops sexstriatus</i>	Six Banded Angelfish
<i>Amphiprion rubrocinctus</i>	Red Clownfish
<i>Amphiprion ocellaris</i>	Black and White Clownfish



The following is a list of reef-dwelling fish which I have observed or collected in the Darwin area; (for our purposes, I have taken the definition of "Darwin area" as being that stretch of coastline which lies roughly between Gunn Point and Bynoe Harbour). Species marked with an asterisk should be regarded as tentative identifications only, due to either insufficient data and specimens, or taxonomic uncertainty. It is likely that many other species occur in this area.

SCIENTIFIC NAME

COMMON NAME

<i>Ampliprion clarkii</i> *	Yellow Faced Clownfish
<i>Pomacentrus littoralis</i>	Blue Damselfish
<i>Pomacentrus milleri</i>	Beau Gregory
<i>Pomacentrus amboinensis</i> *	Yellow Damselfish
<i>Dischistodus fasciatus</i>	Bumble Bee Damselfish
<i>Abudefduf palmeri</i>	Seven Banded Damselfish
<i>Abudefduf melanopus</i>	Black Footed Damselfish
<i>Choerodon schoenleini</i>	Black Spot Tuskfish
<i>Choerodon albigena</i> *	Blue Tuskfish
<i>Halichoeres nigrescens</i>	Green Sand Wrasse
<i>Scaurus fasciatus</i> *	Parrotfish
<i>Istiblennium edentulus</i>	Blennie
<i>Siganus virgatus</i>	Rabbit Faced Spinefoot
<i>Siganus vermiculatus</i>	Scribbled Spinefoot
<i>Acanthurus xanthopterus</i>	Ring Tailed Surgeonfish
<i>Ctenogobius criniger</i>	Hair Finned Gobie
<i>Eleotriodes muralis</i>	Lined Gudgeon
<i>Platycephalus indicus</i>	Flathead
<i>Pterois volitans</i>	Lionfish
<i>Dendrochirus zebra</i>	Dwarf Lionfish
<i>Synanceja trachynis</i>	Stonelfish
<i>Scorpaenopsis gibbosa</i>	False Stonelfish
<i>Scorpaena bynoensis</i>	Scorpionfish
<i>Tricantlus biaculeatus</i>	Tripodfish
<i>Monocantlus chinensis</i>	Fan Bellied Leatherjacket
<i>Ostracion tuberculatum</i>	Boxfish
<i>Diodon hystrix</i>	Porcupinefish
<i>Chelonodon patoca</i>	Marbled Toadfish
<i>Antennarius sp.</i>	Anglerfish (several species)

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In preparing this Checklist, I have generally adopted the scientific nomenclature used in Munro's "Fish of New Guinea" where possible, and have tried to utilize local common names of the more well-known species. I would be grateful to hear from anyone who may be able to expand on or otherwise modify this checklist. If you have any information or specimens, please contact me through the N.T.F.N.C.